RESEARCH HIGHLIGHTS

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Technical Series 03-123

INTEGRATED COMMUNITY SOLUTIONS: REGINA'S AFFORDABLE, SUSTAINABLE HOUSING DESIGN CHARRETTE

Introduction

Current economic and demographic conditions have led to a well-recognized need for the creation of a diverse array of affordable housing solutions across Canada. At the same time, it is critical that housing built today will provide a healthy environment that is sustainable in terms of energy and resource use and impacts on land, air and water. There is a growing understanding that successful approaches to affordable housing include a consideration for long-term operating and maintenance requirements, the broader issues of support systems for occupants, and the health and sustainability of communities. "Least capital-cost" housing is not necessarily affordable housing.

In response to these challenges, a design charrette workshop was held in Regina on Jan. 10, 2003. Design charrettes are becoming more common in design practice and are an excellent way to bring a range of expertise and interests together to collaborate and create effective solutions to multi-faceted projects. The aim of the workshop was to develop affordable and sustainable urban infill housing design solutions for the closed St. Joseph school site (Figure 1) in Regina, Sask., that could create an affordable and desirable community to live in, revitalize the urban environment, and dramatically reduce impacts to natural systems.

The Regina Affordable Sustainable Housing charrette brought together a wide range of partners to initiate a process to design, develop, construct and monitor the development of affordable, sustainable housing in an inner-city neighbourhood of Regina. Thirty-five key individuals contributed their expertise and time over an intensive day of presentations and discussion. They included technical experts, representatives from the local neighbourhood and participants from various partner organizations. The project goal was to create affordable housing design strategies that can reduce operating costs while providing comfortable housing that protects the health of the occupants and the environment.

The design charrette was sponsored by Canada Mortgage and Housing Corporation (CMHC) and hosted by the City of Regina. The planned project is a multi-sector partnership that the City of Regina has undertaken with CMHC, the Saskatchewan Housing Corporation (SHC), the McGill School of Architecture Affordable Homes Program, and other local partners including the Saskatchewan Research Council (SRC). In addition to the strong partnerships developed through the inirial design component of the project, Ehrlo Community Services, a local non-profit housing and housing support provider, is working with the partners on the development of this site.

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CMHC SCHL

HOME TO CANADIANS

Canada

Design Philosophy

Affordable, healthy housing is an important component in the creation of healthy children, caring communities and a sustainable city. The best things in life are free: the sun, the rain, the wind and the ground upon which we tread and are given to us without measure. The St. Joseph affordable, sustainable housing project will optimize the benefits of these natural features, capitalize on existing urban amenities and enhance the surrounding community.

Design Goals

The St. Joseph's site project will use an integrated design approach to create a housing project that is affordable to families in Regina with incomes below $39,500 while meeting the environmental standards for a platinum project under the Leadership in Energy and Environmental Design (LEED) green building rating system. The primary emphasis will be on effective, simple solutions to meet the project objectives while also considering technologies and approaches that reflect significant innovation where appropriate.

Design Parameters

1. 30 apartment dwelling units
2. 50 ground-oriented dwelling units
3. $100k/unit cost including land
4. 1 parking stall/dwelling plus visitor and community centre parking
5. Reuse of gymnasium as part of a community centre that includes space for a day-care centre, offices, meeting rooms and multi-purpose space
6. Affordable housing for families with incomes less than $39,500.
7. LEED platinum-rated sustainable design
8. Develop strategies to accommodate two levels of funding
   - A: Low- or no-cost strategies that optimize total life cycle cost
   - B: Designs that demonstrate a high level of sustainability and have longer-term paybacks (greater than 10 years)

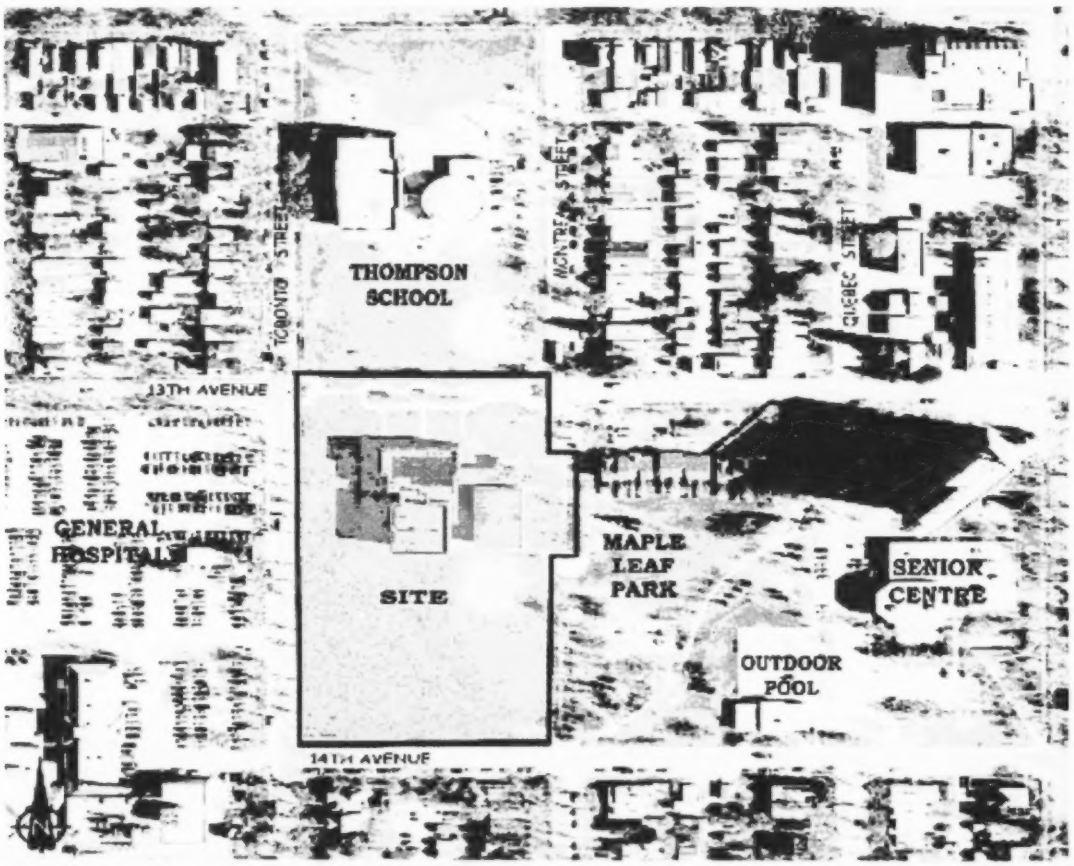

Figure 1: Aerial photograph of the St. Joseph School site neighbourhood

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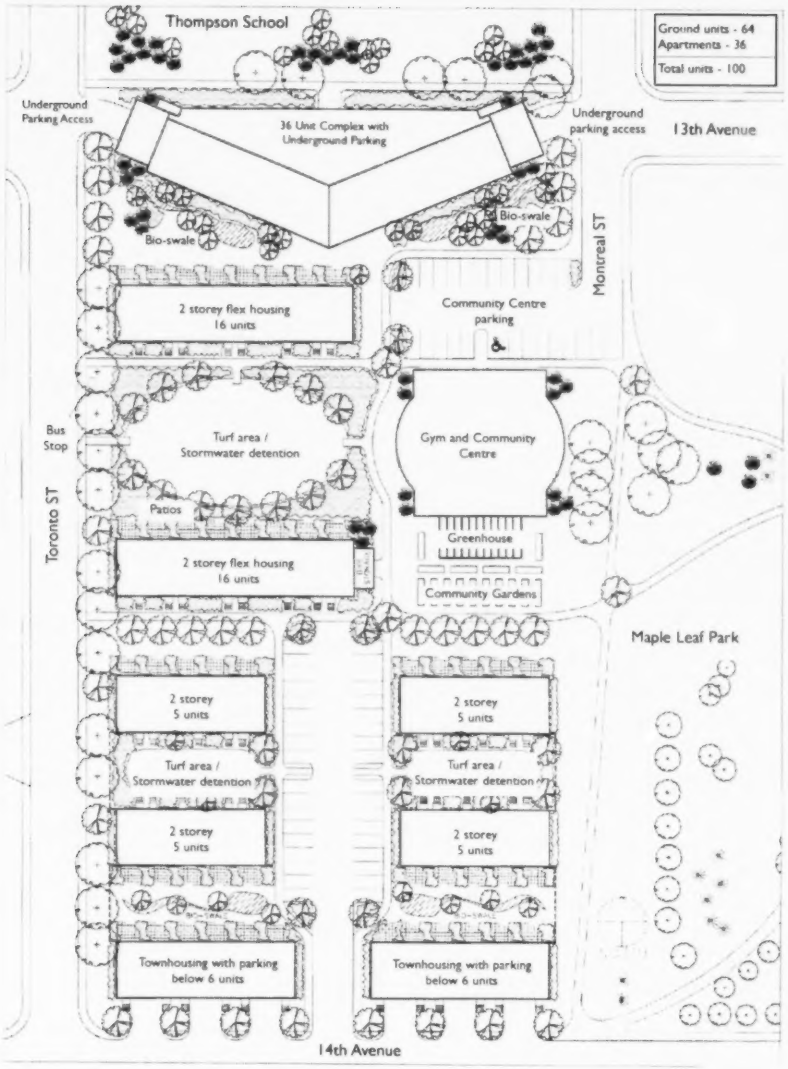

Figure 2: Example Site Plan Scheme

Design Objectives

The project will provide an opportunity to revitalize the community by linking the adjacent school, swimming pool, park and this housing development. Figure 2 shows an example site plan scheme. The proposed site layout shall optimize the following design objectives and facilitate meeting the LEED platinum standards:

1. Provide south orientation and solar access for each dwelling unit.
2. Minimize the impact of roadways and parking lots.
3. Provide low-maintenance, xeriscaped landscape design.
4. Develop a positive, safe sense of place throughout the project.
5. Reuse a maximum amount of material from any demolished buildings on site.
6. Utilize environmentally friendly renewable resources throughout.
7. Integrate accessible units throughout the development.
8. Create a strong community link and orientation to the gym and community centre.

Building Envelope and Geometry

The design and construction of a superior building envelope and energy efficient lighting system will enable the selection of smaller, more efficient and economical mechanical and electrical systems. It is expected that with appropriate heat recovery systems combined with solar hot water systems, a gas-fired boiler may not be required except as a back-up. Using domestic water for cooling, incorporating proper shading and potential ice storage, it is projected that a central cooling plant will not be required. The building systems should be designed to maximize energy and resource efficiency, to minimize the total life-cycle cost for tenants and the facility, and to facilitate ease of operation and effective regular maintenance and repair.

Conclusion

The design charrette was very successful in presenting a vision and potential path towards creating healthy affordable housing and a community asset for the City of Regina. The degree of enthusiasm and positive ideas, as well as the degree of consensus achieved during the charrette, reflect the shared realization of the participants for the extensive benefits that such a well-planned healthy housing project could bring to the housing occupants, as well as the surrounding community.

The charrette provided an effective format that allowed diverse participants to contribute their expertise and opinions, and focus on the overall goal of developing high quality affordable housing that is appropriate for families and the community while also incorporating effective sustainability solutions.

A key to the success of the charrette itself and the project overall is the highly developed partnerships formed through the project's evolution from concept to detailed design planning, all under a clear and strong vision of an affordable and sustainable healthy community for Regina families.

Details on the design charrette discussions, design specifications, and copies of the reports and presentations from the workshop are available in the full project report.

CMHC Project Manager: Thomas Green

Research Consultant: City of Regina
Integrated Controls Ltd.

A full report on this project is available from the Canadian Housing Information Centre at the address below.

Housing Research at CMHC

Under Part IX of the *National Housing Act*, the Government of Canada provides funds to CMHC to conduct research into the social, economic and technical aspects of housing and related fields, and to undertake the publishing and distribution of the results of this research.

This fact sheet is one of a series intended to inform you of the nature and scope of CMHC's research.

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or contact:

Canada Mortgage and Housing Corporation
700 Montreal Road
Ottawa, Ontario
K1A 0P7

Phone: 1 800 668-2642
Fax: 1 800 245-9274

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